CALIFORNIA DIVISION OF MINES AND GEOLOGY
FAULT EVALUATION REPORT FER-244
SUPPLEMENT No. 1

SIMI-SANTA ROSA FAULT ZONE
Ventura County, California

by
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March 31, 1999

Introduction

The Simi-Santa Rosa fault zone was evaluated by Treiman (1998) and portions of the fault were found to be sufficiently active and well-defined for zoning under the Alquist-Priolo Earthquake Fault Zoning Act (Hart and Bryant, 1997). Earthquake Fault Zones (EFZ's) were recommended and four preliminary EFZ maps were issued on November 1, 1998 (California Division of Mines and Geology, 1998a,b,c,d). The purpose of this supplement is to respond to comments received during the official review period that ended on February 1, 1999.

Comments Received and Response

#1. Earth Systems Consultants (1999) submitted a request for reconsideration of the proposed zoning of the Santa Rosa Valley fault in the vicinity of localities 4 & 5 (Figure 1), asking that the EFZ (Newbury Park quadrangle – California Division of Mines and Geology, 1998b) be reduced in length so as to not impact the eastern parcels (vicinity of locality 5). They supported their request with the submittal of geotechnical studies for three adjacent projects, (Buena Engineers, 1988a; Earth Systems, 1997a & 1998a), including four reports not previously reviewed (Earth Systems, 1997c,d & 1998b,c).

No data was submitted that would affect the proposed zoning. The existing data, although showing lack of faulting in the young, upper alluvial materials within part of the proposed zone, did not demonstrate the absence of faulting at greater depths nor did the data refute the principal fault on which the zone is based.

#2. Gorian and Associates submitted a letter and map (Gorian, 1999) addressing the zoning of the Simi fault north of Tierra Rejada Valley on the Simi Valley West quadrangle (California Division of Mines and Geology, 1998d). Observations made by the consultant during extensive grading for a golf course, east of Highway 23, did not find any evidence for the eastern portion of an inferred fault splay, north of the main trace, as shown on Figure 2. They also noted that in various studies west of Highway 23, in particular a water tank site, they had observed no faulting north of the Simi fault as shown on the preliminary review map. Based on these observations they have requested that the northern fault trace be deleted and that the EFZ be narrowed on the north. A small fault observed during subsequent grading of the clubhouse site was closer to the

main trace (~240') than the mapped splay, but no evidence was seen of the northern trace (Scott Simmons, Gorian & Associates, personal communication, 1999).

I was invited to the golf course site to observe investigations in early December 1998. The main fault trace of the Simi fault was exposed in a cut-slope (locality 33A, Figure 2) and in a canyon clean-out to the east (locality 33C, Figure 2). A trench was excavated across one of the stronger topographic features that was originally taken as an indication of the inferred fault strand (locality 33B, Figure 2). I inspected the trench, along with Scott Simmons of Gorian and Associates, and although two bedrock shears were observed within the Oligocene Sespe Formation south of the topographic break, these shears did not correspond to the suspect topographic feature. The topographic irregularity may have been due to resistant bedding or increased erodeability of an inset Quaternary channel deposit. No evidence was observed to warrant retention of the eastern part of the inferred fault splay through and east of the clubhouse site.

A bedrock fault was observed in grading being done to the north of the main strand (north of locality 33A), at the western side of the project. The age of this latter fault was not determinable due to stripping of the younger soils, but its location and orientation warrant keeping the eastern portion of the splay fault within the EFZ.

Other Information Received

Subsequent to the release of the Preliminary Earthquake Fault Zone Maps for the Simi-Santa Rosa fault zone additional fault studies have been done at three sites that have been brought to our attention. Requests have been received for modification of the proposed Earthquake Fault zones at one of these sites (item #2 in the preceding section). The other two sites, on the Santa Rosa Valley fault within the Newbury Park quadrangle, are discussed here.

#3) I was invited (in late December, 1998) to view trenching in progress at locality 1A (see Figure 1), being done by GeoSoils, Inc. Several trenches across the toe of an escarpment associated with the Santa Rosa Valley fault exposed moderate to high-angle reverse faults, including backthrusts. Adjacent beds of the Pleistocene Las Posas Formation were deformed severely and were overturned in some instances. Some of the faults appeared to displace colluvium or slopewash. Additional work in the alluvium south of the escarpment (utilizing CPT's) is reported to have located what may be the main buried thrust fault (Joe Cota, GeoSoils, personal communication, 1999).

#4) I was also invited (in November 1998) to observe a trench approximately 7km to the east, excavated by C.Y. Geotech, Inc. across a broad scarp or warp associated with the Santa Rosa Valley fault (locality 21A, Figure 1). Although this trench was only open a relatively short time and was incompletely cleaned at the time of my observation, a backthrust (dipping 43°S) was clearly exposed that offset and deformed late Quaternary alluvial deposits and may have affected soil thickness. The main thrust was not exposed, but Quaternary fan deposits were inclined 30°-40°S within the inferred upper plate. It is

possible that the main fault is blind at this locale and the observed fault was an intercalation backthrust.

No dating of deposits was done at either site #3 or site #4, but the findings are taken as corroboration of the presence of the Santa Rosa fault zone as a zone of latest Pleistocene to Holocene deformation and potential surface rupture.

Since the original Fault Evaluation Report was prepared (Treiman, 1998) some of the studies in progress at the time have been completed and we have received copies of the reports. The following references in the Fault Evaluation Report FER-244 can now be updated. Consultant studies, west of Arroyo Simi (locality 36, Figure 2) are to be found in Raney Geotechnical (1998). Trenching at locality 47 (Figure 3), in Simi Valley is described by GeoSoils (1998). There are no additional data in the released reports that would affect the proposed Earthquake Fault Zones.

Recommendations

The Earthquake Fault Zone for the Simi Valley West quadrangle (California Division of Mines and Geology, 1998d) should be modified as indicated on Figure 4. The EFZ's for Simi-Santa Rosa fault zone on the Newbury Park, Moorpark and Simi Valley East quadrangles (California Division of Mines and Geology, 1998a,b,c) should remain as proposed.

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Reviewed & approved report
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References

[indicates reports not previously reviewed]*

Buena Engineers, 1988a, Geologic report for tract 4293, Camarillo, California: unpublished consultants' report B-17097-V1, February 15, 1988.

California Division of Mines and Geology, 1998a, Preliminary Earthquake Fault Zone Map of the Moorpark quadrangle (map dated November 1, 1998), scale 1:24,000.

California Division of Mines and Geology, 1998b, Preliminary Earthquake Fault Zone Map of the Newbury Park quadrangle (map dated November 1, 1998), scale 1:24,000.

California Division of Mines and Geology, 1998c, Preliminary Earthquake Fault Zone Map of the Simi Valley East quadrangle (map dated November 1, 1998), scale 1:24,000.

California Division of Mines and Geology, 1998d, Preliminary Earthquake Fault Zone Map of the Simi Valley West quadrangle (map dated November 1, 1998), scale 1:24,000.

Earth Systems Consultants, 1997a, Engineering geology and geotechnical engineering report for tract 4678 and LD396, Camarillo, California: unpublished consultants' report SS-21309-V1, June 24, 1997.

*Earth Systems Consultants, 1997c, Response to engineering geology and soils engineering review for tract 4678 and LD396, Camarillo, California: unpublished consultants' report SG-21309-V1, October 6, 1997.

*Earth Systems Consultants, 1997d, Response to second engineering geology and soils engineering review [for tract 4678 and LD396]: unpublished consultants' report SG-21309-V1, November 10, 1997.

Earth Systems Consultants, 1998a, Engineering geology and geotechnical engineering report for tract 5126, Camarillo, California: unpublished consultants' report SS-21309-V3, June 11, 1998.

*Earth Systems Consultants, 1998b, Response to engineering geology and soils engineering review for tract 5126: unpublished consultants' report SS-21309-V3, September 28, 1998.

*Earth Systems Consultants, 1998c, Addendum to response to engineering geology and soils engineering review for tract 5126: unpublished consultants' report SS-21309-V3, November 12, 1998.

*Earth Systems Consultants, 1999, letter addressed to Mr. James F. Davis, State Geologist, California Division of Mines and Geology, dated January 20, 1999, with enclosures.

*GeoSoils, Inc., 1998a, Fault study, LDS-570, Township Avenue, Simi Valley, California: unpublished consultant's report, W.O.4826-VN, July 27, 1998.

*GeoSoils, Inc., 1998b, Response to comments 1 and 2 of the city of Simi Valley Department of Public Works engineering geology and soils engineering review sheet dated August 17, 1998, LDS-570: unpublished consultant's report, W.O.4826-VN, September 23, 1998.

*Gorian & Associates, Inc., 1999, letter addressed to John Parrish, Executive Officer, State Mining and Geology Board, dated January 20, 1999, with enclosure.

Hart, E.W., and Bryant, W.A., 1997, Fault rupture hazard zones in California, Alquist-Priolo Earthquake Fault Zoning Act with index to Earthquake Fault Zone maps: California Division of Mines and Geology Special Publication 42, revised 1997, 38p.

*Raney Geotechnical, 1998a, Preliminary geotechnical and engineering geology investigation, proposed residential development, Simi Valley Drive-In property, Tierra Rejada Road west of Madera Road, Simi Valley, California: unpublished consultants' report, Ref.No.1630-001, April 2, 1998.

*Raney Geotechnical, 1998b, Addendum preliminary geotechnical investigation, proposed residential development, Simi Valley Drive-In property, Tierra Rejada Road west of Madera Road, Simi Valley, California: unpublished consultants' report, Ref.No.1630-001, August 4, 1998.

*Raney Geotechnical, 1998c, Fault rupture potential investigation, proposed residential development, Simi Valley Drive-In property, Tierra Rejada Road west of Madera Road, Simi Valley, California: unpublished consultants' report, Ref.No.1630-001, August 4, 1998.

Treiman, J.A., 1998, Simi-Santa Rosa fault zone in the Moorpark, Newbury Park, Simi Valley East, Simi Valley West and Thousand Oaks quadrangles, Ventura County, California: California Division of Mines and Geology, unpublished Fault Evaluation Report FER-244, October 5, 1998.

CALIFORNIA DIVISION OF MINES AND GEOLOGY
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THE RESOURCES AGENCY
DEPARTMENT OF CONSERVATION

Figure 1 (FER-244, supplement no.1) - a portion of the Preliminary Review Map for the Newbury Park quadrangle (CDMG, 1998b) showing locations of studies and sites referred to in the text.

Figure 2 (FER-244, supplement no.1) - a portion of the Preliminary Review Map for the Simi Valley West quadrangle (CDMG, 1998d) showing locations of studies and observations referred to in the text.

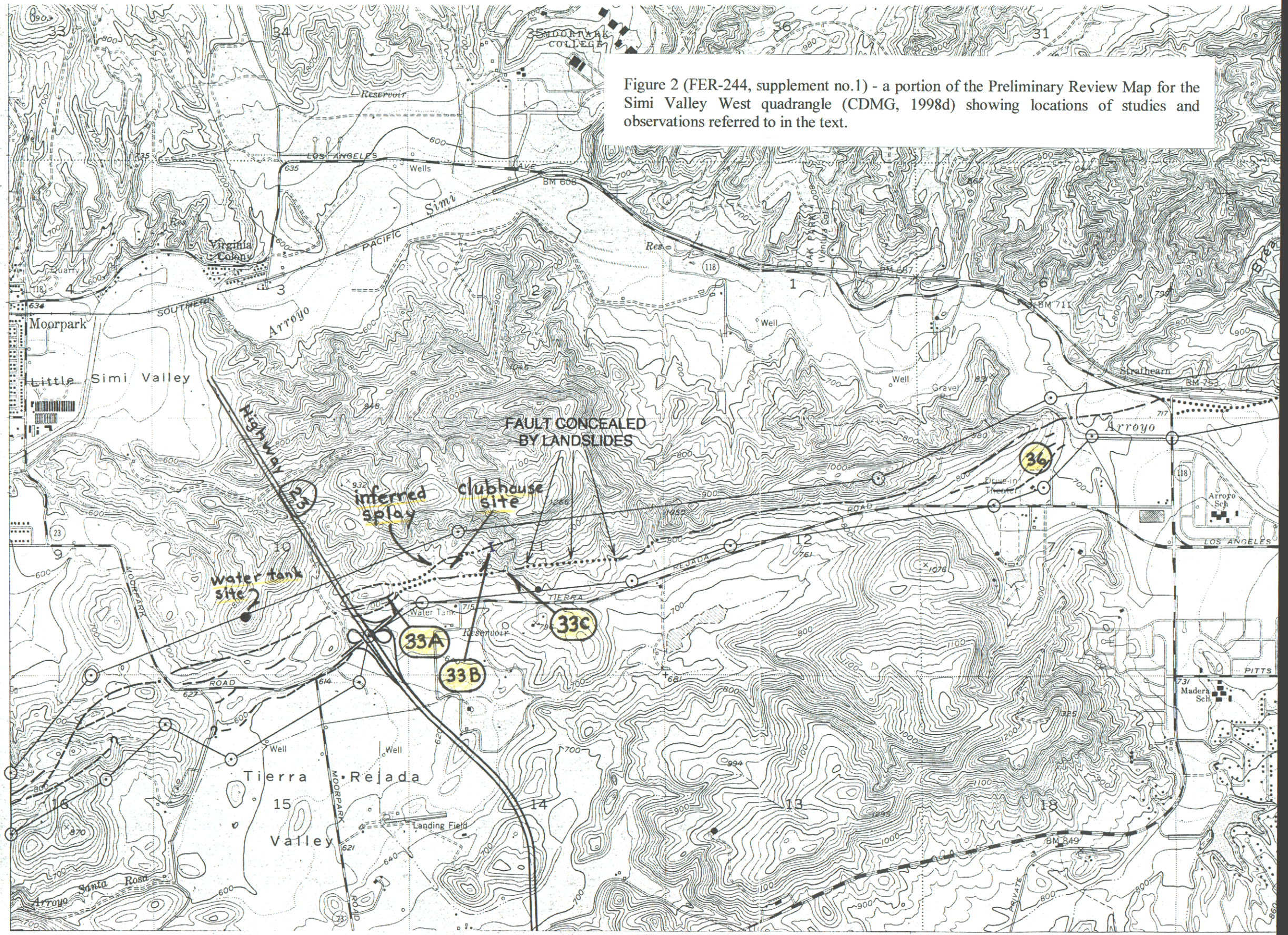
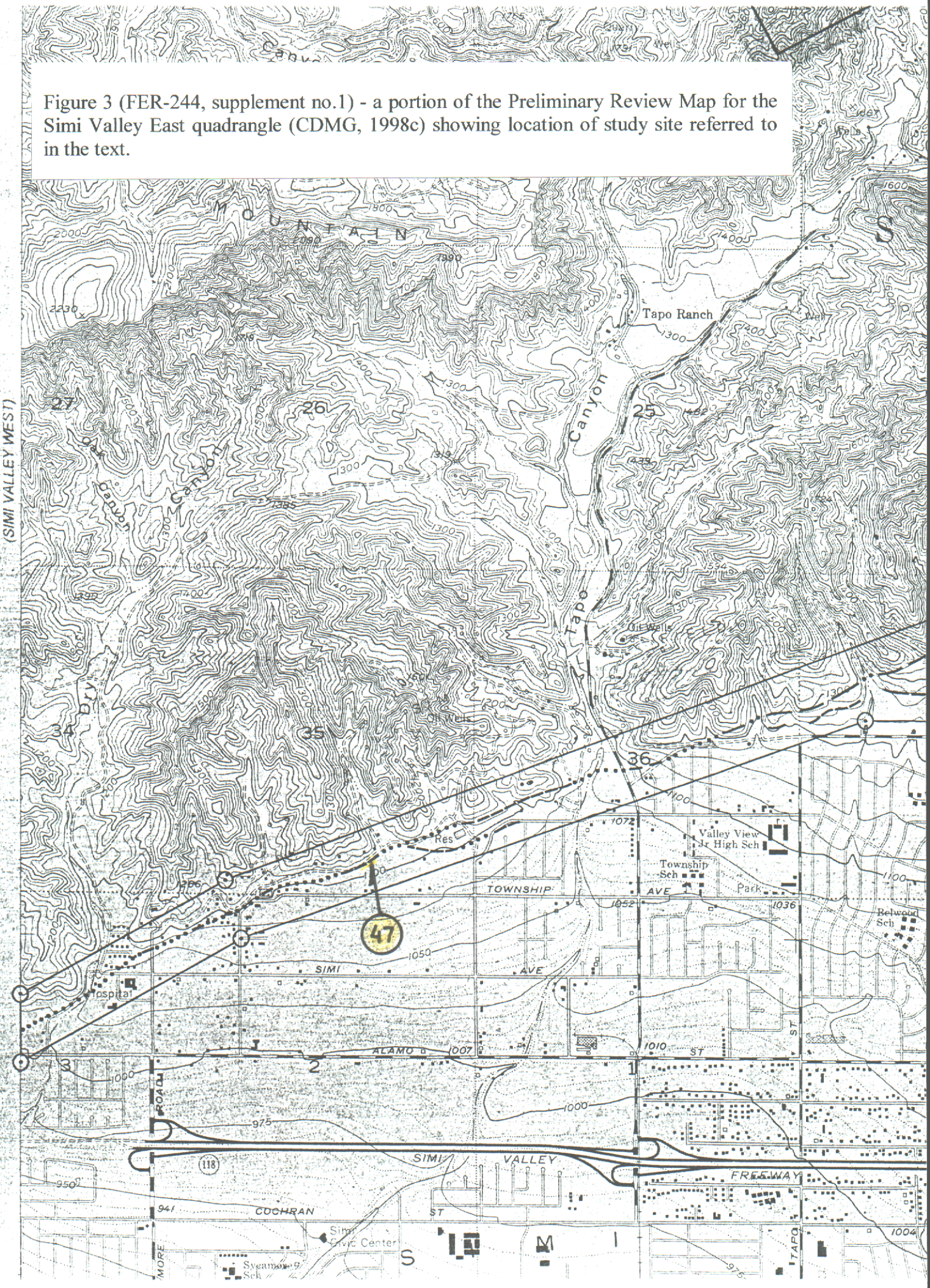


Figure 3 (FER-244, supplement no.1) - a portion of the Preliminary Review Map for the Simi Valley East quadrangle (CDMG, 1998c) showing location of study site referred to in the text.



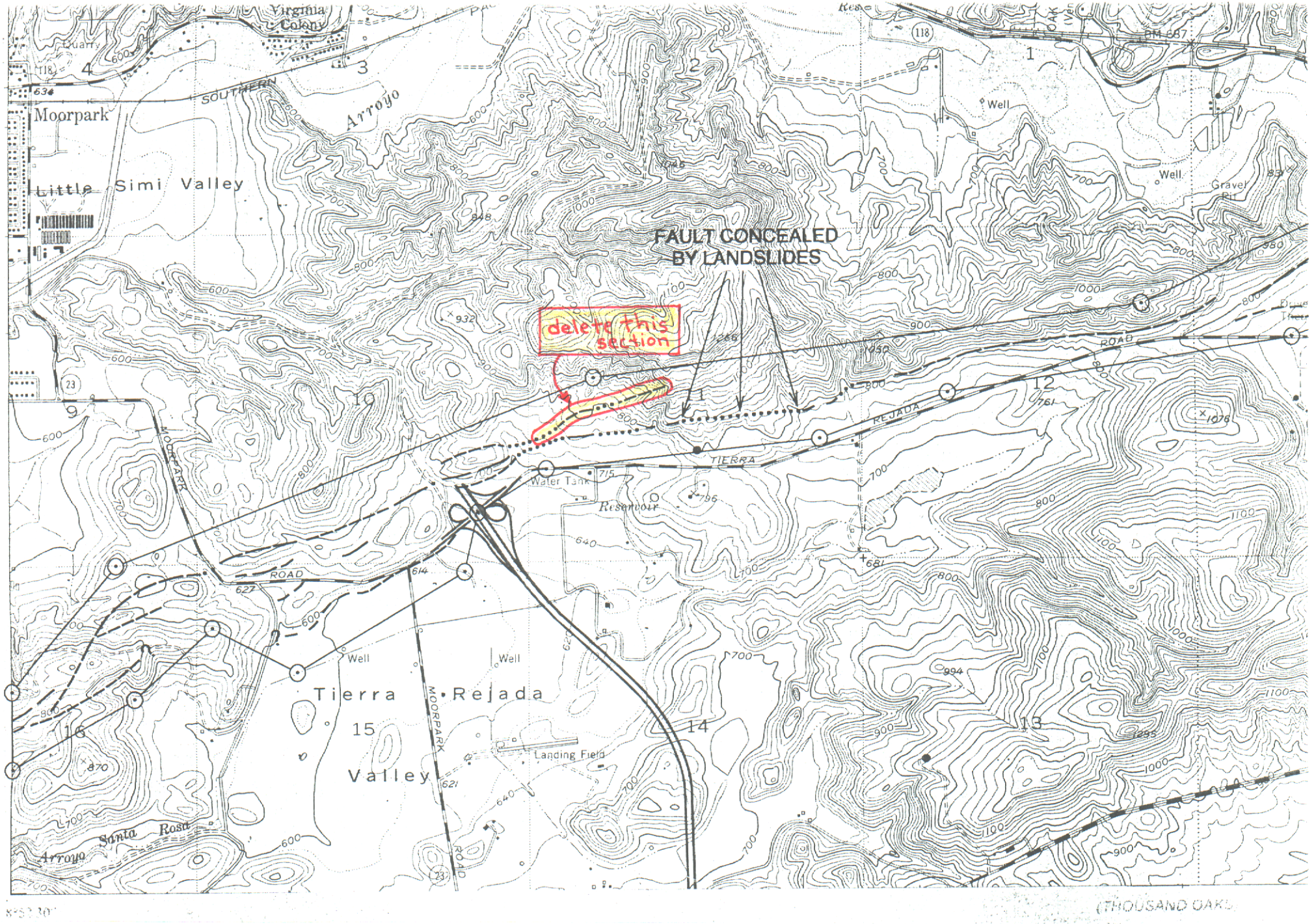


Figure 4 (FER-244, supplement no.1) - a portion of the Preliminary Review Map for the Simi Valley West quadrangle (CDMG, 1998d) showing the fault splay recommended for deletion.